OCR
Oxford Cambridge and RSA

Sample Assessment Material Version 2.0

Level 3 Certificate in Core Maths A (MEI)

H868/02 Critical Maths
Sample Question Paper

Time allowed: 2 hours

You must have:
- the Insert (inside this document)

You can use:
- a scientific or graphical calculator

Please write clearly in black ink. **Do not write in the barcodes.**

Centre number | | | | | | Candidate number | | | | |

First name (s) _____

Last name _____

INSTRUCTIONS
- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.
- Where appropriate, your answer should be supported with working.
- Give your final answers to a degree of accuracy that is appropriate to the context.

INFORMATION
- The total mark for this paper is **60**.
- The marks for each question are shown in brackets **[ ]**.
- This document has **20** pages.

ADVICE
- Read each question carefully before you start your answer.

1 It is possible to drive from London to Leeds on the motorway all the way.
The distance is approximately 200 miles.

Calculate an estimate for how long the journey will take.

Show your reasoning.

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……**[3]**

2 Dev books a holiday which costs £5000.

He pays with his credit card which charges an annual interest rate (APR) of 16%.
Dev wants to pay back the money over **two** years.
He estimates that his monthly repayments will be £208 to the **nearest pound**.

(a) What calculation did Dev do to get £208?

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..... **[1]**

(b) Is Dev's estimate too low, about right or too high?

Tick (✓) **one** box.

Give a reason for your answer.

Too low ☐

About right ☐

Too high ☐

Reason .....

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..... **[2]**

3 An athlete won gold medals in the 100m and 200m races.

- His time for the 100m race was 9.63 seconds.
- His time for the 200m race was 19.32 seconds.

Was his average speed in the 100m race greater than or less than his average speed in the 200m race?

Tick (✓) **one** box.

His average speed in the 100m race was greater than in the 200m race. ☐

His average speed in the 100m race was less than in the 200m race. ☐

Show your reasoning.

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..... **[3]**

BLANK PAGE

DO NOT WRITE ON THIS PAGE

4 Here is a statement about the amount of time spent teaching maths in secondary schools in England:

'On average, secondary schools in England spend only 116 hours per year teaching maths.
International studies show this is far less time than other countries.
Just one extra lesson each week would put England closer to countries like Australia or Singapore who teach 143 and 138 hours of maths per year respectively.'

(a) Calculate an estimate of the number of extra maths teachers needed to increase average maths teaching time for years 7 to 11 in England from 116 hours per year up to the time taken in Australia or Singapore.

Use these assumptions:

- there are about 500 000 school students in each year group in England
- a typical secondary school mathematics teacher teaches between 20 and 25 hours a week
- students are at school for 190 days a year.

Show your working.

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…… **[6]**

(b) State clearly any additional assumption(s) you made.

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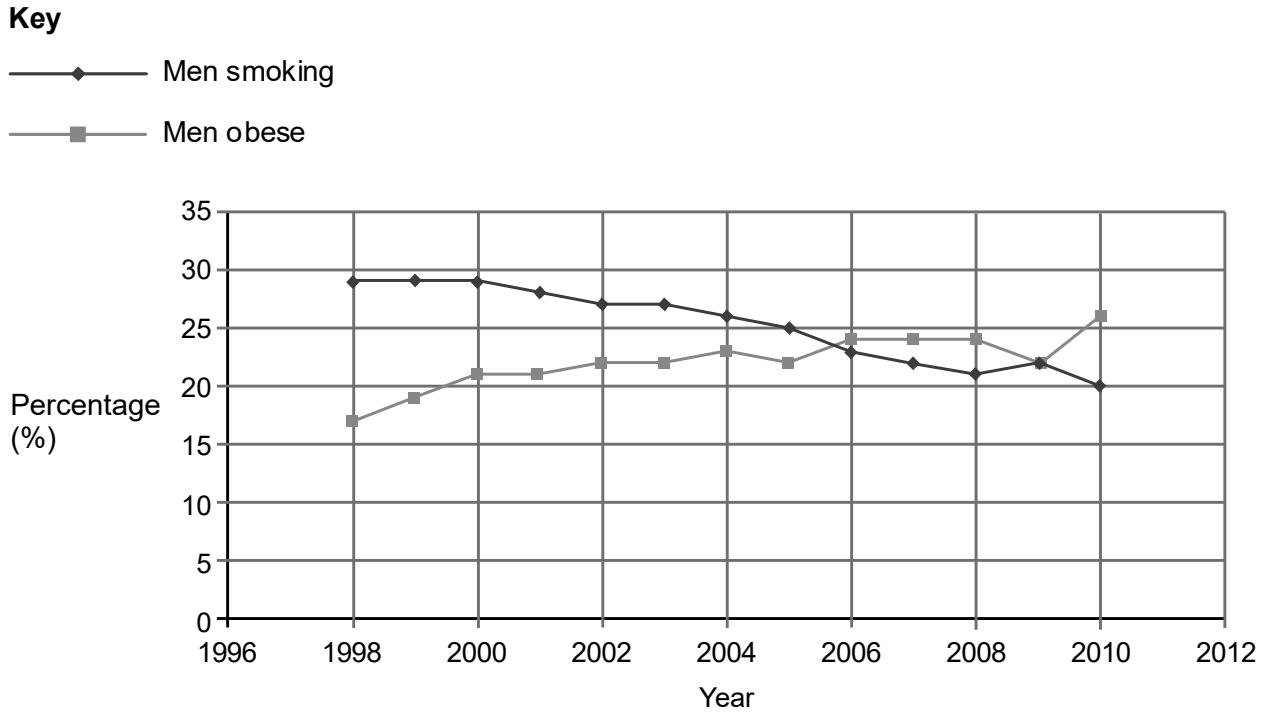
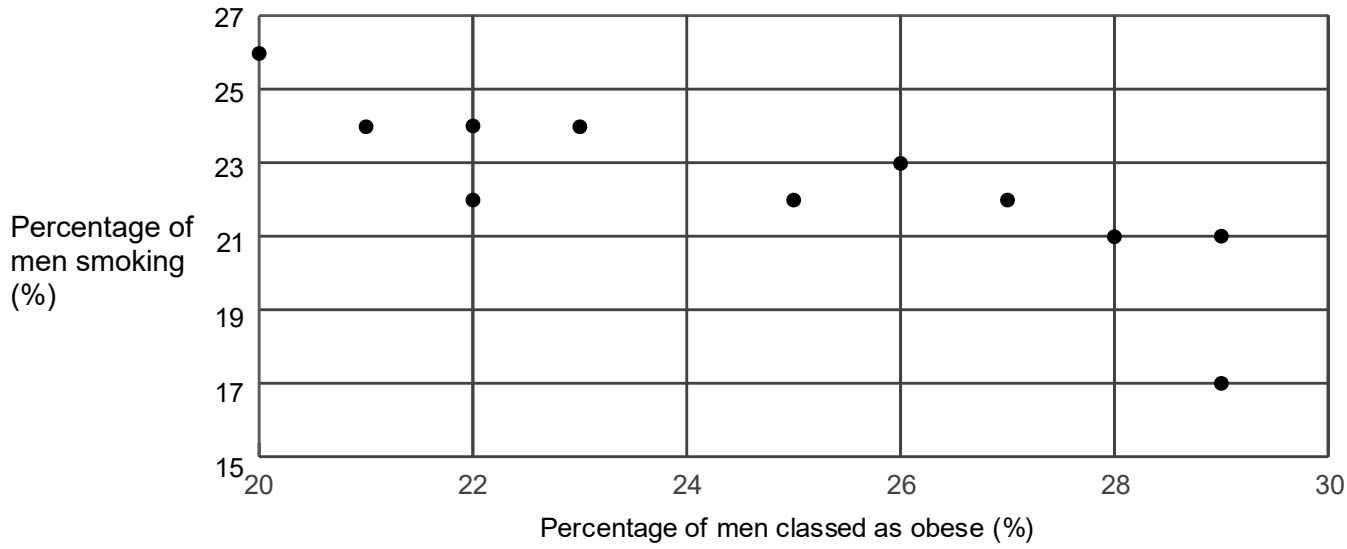
..... **[1]**

5 The graphs show data about smoking and obesity for men in England from 1998 to 2010.





Make **three** comments about whether the statement below is correct or **not** correct.

‘These graphs show that giving up smoking causes obesity.’

Comment 1.....

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Comment 2.....

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Comment 3.....

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..... **[3]**

6 Here are two statements about the same news story.

Statement A: 70% of parents were fined for taking their children out of school for a holiday in term time.

Statement B: The number of parents fined for taking their children out of school for a holiday in term time rose by 70% from the previous year.

(a) Use suitable numbers to show clearly what each of these statements means.

Statement A.....

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Statement B.....

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..... **[4]**

(b) Explain whether both statements mean the same as each other.

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..... **[1]**

7 This question is based on article B in the **pre-release material**, 'Male to female sex ratio'.

A clean copy of the pre-release material is provided as an Insert.

The male to female sex ratio at birth is the number of males that are born for every female born.

The table shows the two countries with the highest male to female sex ratios at birth in 2013.

Country	Male to female sex ratio at birth	Population (thousands)	Births per 1000 of population
Liechtenstein	1.26	37	10.67
Azerbaijan	1.13	9590	17.17

(a) (i) Show that the total number of births in 2013 in Liechtenstein can be estimated as 395.

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..... **[1]**

(ii) Show that, of these 395 births, approximately 175 are female and approximately 220 are male.

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..... **[3]**

(b) A researcher is investigating whether the number of males born in some countries is distinctly different from the number of females.

Her initial model is that the long-term probability of a new baby being a male is 0.5.

(i) According to the model, what would be the **mean** number of males for 395 births?

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..... **[1]**

(ii) According to the model, what would be the **standard deviation** of the number of males for 395 births?

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..... **[2]**

(iii) Explain whether the figures of 175 females and 220 males provide strong evidence that the initial model is **not** correct for Liechtenstein.

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(iv) In 2013 in Azerbaijan 77 305 females and 87 355 males were born.

Show that these figures provide strong evidence that the initial model is **not** correct.

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..... **[4]**

8 This question is based on article A in the **pre-release material**, 'Car parking'.
A clean copy of the pre-release material is provided as an Insert.

This sign shows charges for parking in a car park.

Car park charges

Monday to Friday, 9am to 5pm
Up to 8 hours - £3

All other times
Free

£40 daily fine for parking without displaying a valid parking ticket

Drivers who pay get a ticket to display in their cars.

A warden checks the cars. If they find any cars which are **not** displaying a ticket, their drivers get a £40 fine for that day.

Many drivers use the car park every day from 9 am till 5 pm.

How often, on average, should the warden visit the car park to ensure that drivers who always pay for parking are charged less overall than drivers who never pay for parking?

Assume that:
- some drivers always pay to park and some drivers never pay to park
- all drivers who get a fine will pay it.

Justify your answer using calculations.

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..... **[3]**

9 Athletes are tested to see if they have used performance enhancing drugs.
Drug tests are **not** completely accurate.
One drug test will show:

- a positive result for 95% of people who have taken performance enhancing drugs
- a negative result for 90% of people who have **not**.

Assume that 5% of athletes use performance enhancing drugs.

(a) Complete the two-way table to show the expected frequencies when a sample of typical athletes is tested.

You need to choose an appropriate size for the sample of athletes that is easy to work with.

	Tests positive	**Tests Negative**	**Total**
Has taken drug			
Has not taken drug			
Total			

[4]

(b) What percentage of those who are tested will test positive for use of performance enhancing drugs?

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..... **[2]**

(c) What proportion of those who test positive in this test have actually used performance enhancing drugs?

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..... **[2]**

10 There are five competitors in a dancing competition.
Each dancer is judged by six judges who each give a score out of 20.

(a) Design a method to decide which dancers should take first, second and third places.

Give your method as a set of rules that can be used for other similar competitions.

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..... **[4]**

(b) Explain why your design is fair.

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..... **[1]**

(c) The table shows the scores for the dancers in a competition.

Dancer	Judge 1	Judge 2	Judge 3	Judge 4	Judge 5	Judge 6
Alex	19	19	15	20	20	14
Emma	12	7	4	4	7	8
Mia	10	8	11	5	5	2
Tom	16	19	20	19	17	16
Yuki	15	6	12	15	6	9

Use the method you designed in **(a)** to work out which dancers come first, second and third.

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..... **[5]**

END OF QUESTION PAPER

EXTRA ANSWER SPACE

If you need extra space use these lined pages. You must write the question numbers clearly in the margin.

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3 Data taken from the CIA World Factbook

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Sample Assessment Material

Level 3 Certificate in Core Maths A (MEI)

H868/02 Critical Maths

MARK SCHEME

Duration: 2 hours

MAXIMUM MARK 60

Version – 2.0
Last Updated: September 2025

This document consists of 16 pages

Marking Instructions

Preparation For Marking

1. RM Assessor

- Access and complete the on-screen marking training packages: OCR Examiner Training (RMA3).
- Read the mark scheme and question paper for this component or unit.
- The mark scheme and question paper are available in RM Assessor or on your Component Page if you use the Training Platform for standardisation.
- Log in to RM Assessor and mark the **required number** of practice scripts and the **required number** of standardisation scripts.

Marking

2. General Guidance

- Mark strictly to the mark scheme.
- Marks awarded must relate directly to the marking criteria.
- If you are in any doubt about applying the mark scheme, consult your Team Leader by phone, email or via the RM Assessor messaging system.
- It is **essential** that you meet the RM Assessor 50% and 100% batch deadlines. For traditional marking this will be 40% and 100%. If you experience problems, contact your Team Leader without delay.
- Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add the annotation '**SEEN**' to confirm that the work has been seen and mark any responses using the annotations in Section 11.
- The RM Assessor **comments box** is used by your Team Leader to explain the marking of the practice responses. Use these comments when checking your practice responses. **Do not use the comments box for any other reason.**

- **Before the end of the marking period** send *a brief report on the performance of candidates to your Team Leader via email. The report should contain notes on strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.*

3. No Response and Crossed-out Answers

Using the No Response (NR) option. Only mark as NR if:

- the answer space is blank
- there is only a comment not related to the question (e.g., 'can't do', 'don't know')
- there is only a mark (e.g., a dash, a question mark) which is not an attempt at the question.

Note: Enter 0 marks for an attempt that earns no credit (including copying out the question). Do **not** use NR.

Crossed-out answers
If a candidate has crossed out an answer and written a clear alternative, do **not** mark the crossed-out answer.

If a candidate has crossed out an answer and **not** written a clear alternative, mark the crossed-out answer if it is readable.

4. Responses with more answers than needed

- **Multiple-choice question answers**
  When a multiple-choice question has only **one** correct answer and a candidate has written two or more answers (even if one of these answers is correct), do **not** award a mark.

  When a multiple-choice question asks candidates to select **more than** one option the marking guidance from your Principal Examiner will ensure consistency of approach.

Contradictory answers in points-based questions
Do **not** award any marks, even if one of the answers is correct.

- **Rubric error answers – optional questions**
  Where candidates have a choice of question/s and they provide more answers than required, all responses are marked and entered into RM Assessor. The highest mark allowable within the rubric will automatically be selected.

- **Questions that ask for a set number (including 1) of short answers or points**
  Mark only the **first set number** of answers/points. (e.g. **two** reasons for something)

  First mark the answers/points against printed numbers on the answer lines. Mark the first answer/point against each printed number. **Second**, if candidates have not followed the printed numbers, mark the answers/points from left to right on each line. **Third,** mark line by line until the set number of answers/points have been marked. Do **not** mark any remaining answers/points.

  Examiners should use their own judgement to decide if a 'second answer' on the same line is adding more detail to the first answer, or if it is a completely separate answer.

- Short Answer Questions **(requiring a more developed response, worth two or more marks**)
  If the candidates are required to provide a description of, for example, three items and four items are provided, mark line by line until the set number of descriptions have been marked (it is unlikely a candidate will provide more than one response on each line in this scenario).

- Longer Answer Questions **(requiring a developed response)**
  If a candidate has written two or more answers to a question that only requires one (developed) answer, only mark the first answer (which has not been crossed out).

5. Annotations available in RM Assessor

Annotation	Meaning
✓and ✗	
BOD	Benefit of doubt
FT	Follow through
ISW	Ignore subsequent working
M0, M1	Method mark awarded 0, 1
A0, A1	Accuracy mark awarded 0, 1
B0, B1	Independent mark awarded 0, 1
SC	Special case
^	Omission sign
MR	Misread
Highlighting	

6. Abbreviations, annotations and conventions used in the mark scheme (including subject-specific conventions).

Abbreviation / Annotation	Meaning
E1	Mark for explaining
U1	Mark for correct units
G1	Mark for a correct feature on a graph
M1 dep*	Method mark dependent on a previous mark, indicated by *
cao	Correct answer only
oe	Or equivalent
rot	Rounded or truncated
soi	Seen or implied
www	Without wrong working

7. Subject Specific Marking Instructions

a. Annotations must be used during your marking. For a response awarded zero (or full) marks a single appropriate annotation (cross, tick, M0 or ^) is sufficient, but not required.

For responses that are not awarded either 0 or full marks, you must make it clear how you have arrived at the mark you have awarded and all responses must have enough annotation for a reviewer to decide if the mark awarded is correct without having to mark it independently.

It is vital that you annotate standardisation scripts fully to show how the marks have been awarded.

Award NR (No Response)
- if there is nothing written at all in the answer space and no attempt elsewhere in the script
- OR if there is a comment which does not in any way relate to the question (e.g. 'can't do', 'don't know')
- OR if there is a mark (e.g. a dash, a question mark, a picture) which isn't an attempt at the question.

Note: Award 0 marks only for an attempt that earns no credit (including copying out the question).

If a candidate uses the answer space for one question to answer another, for example using the space for 8(b) to answer 8(a), then give benefit of doubt unless it is ambiguous for which part it is intended.

b. An element of professional judgement is required in the marking of any written paper. Remember that the mark scheme is designed to assist in marking incorrect solutions. Correct solutions leading to correct answers are awarded full marks but work must not always be judged on the answer alone, and answers that are given in the question, especially, must be validly obtained; key steps in the working must always be looked at and anything unfamiliar must be investigated thoroughly. Correct but unfamiliar or unexpected methods are often signalled by a correct result following an apparently incorrect method. Such work must be carefully assessed. When a candidate adopts a method which does not correspond to the mark scheme, escalate the question to your Team Leader who will decide on a course of action with the Principal Examiner.

If you are in any doubt whatsoever you should contact your Team Leader.

c. The following types of marks are available.

M

A suitable method has been selected and applied in a manner which shows that the method is essentially understood. Method marks

are not usually lost for numerical errors, algebraic slips or errors in units. However, it is not usually sufficient for a candidate just to indicate an intention of using some method or just to quote a formula; the formula or idea must be applied to the specific problem in hand, e.g. by substituting the relevant quantities into the formula. In some cases the nature of the errors allowed for the award of an M mark may be specified.
A method mark may usually be implied by a correct answer unless the question includes the DR statement, the command words "Determine" or "Show that", or some other indication that the method must be given explicitly.

A
Accuracy mark, awarded for a correct answer or intermediate step correctly obtained. Accuracy marks cannot be given unless the associated Method mark is earned (or implied). Therefore M0 A1 cannot ever be awarded.

B
Mark for a correct result or statement independent of Method marks.

E
A given result is to be established or a result has to be explained. This usually requires more working or explanation than the establishment of an unknown result.

Unless otherwise indicated, marks once gained cannot subsequently be lost, e.g. wrong working following a correct form of answer is ignored. Sometimes this is reinforced in the mark scheme by the abbreviation isw. However, this would not apply to a case where a candidate passes through the correct answer as part of a wrong argument.

d. When a part of a question has two or more 'method' steps, the M marks are in principle independent unless the scheme specifically says otherwise; and similarly where there are several B marks allocated. (The notation 'dep*' is used to indicate that a particular mark is dependent on an earlier, asterisked, mark in the scheme.) Of course, in practice it may happen that when a candidate has once gone wrong in a part of a question, the work from there on is worthless so that no more marks can sensibly be given. On the other hand, when two or more steps are successfully run together by the candidate, the earlier marks are implied and full credit must be given.

e. The abbreviation FT implies that the A or B mark indicated is allowed for work correctly following on from previously incorrect results. Otherwise, A and B marks are given for correct work only – differences in notation are of course permitted. A (accuracy) marks are not given for answers obtained from incorrect working. When A or B marks are awarded for work at an intermediate stage of a solution, there may be various alternatives that are equally acceptable. In such cases, what is acceptable will be detailed in the mark scheme. If this is not the case please, escalate the question to your Team Leader who will decide on a course of action with the Principal Examiner.

Sometimes the answer to one part of a question is used in a later part of the same question. In this case, A marks will often be 'follow through'. In such cases you must ensure that you refer back to the answer of the previous part question even if this is not shown within the image zone. You may find it easier to mark follow through questions candidate-by-candidate rather than question-by-question.

f. We are usually quite flexible about the accuracy to which the final answer is expressed; over-specification is usually only penalised where the scheme explicitly says so.
   - When a value is given in the paper only accept an answer correct to at least as many significant figures as the given value.
   - When a value is not given in the paper accept any answer that agrees with the correct value to 3 s.f. unless a different level of accuracy has been asked for in the question, or the mark scheme specifies an acceptable range.
     NB for Specification B (MEI) the rubric is not specific about the level of accuracy required, so this statement reads "2 s.f".

   Follow through should be used so that only one mark in any question is lost for each distinct accuracy error.
   Candidates using a value of 9.80, 9.81 or 10 for g should usually be penalised for any final accuracy marks which do not agree to the value found with 9.8 which is given in the rubric.

g. Rules for replaced work and multiple attempts:
   - If one attempt is clearly indicated as the one to mark, or only one is left uncrossed out, then mark that attempt and ignore the others.
   - If more than one attempt is left not crossed out, then mark the last attempt unless it only repeats part of the first attempt or is substantially less complete.
   - if a candidate crosses out all of their attempts, the assessor should attempt to mark the crossed out answer(s) as above and award marks appropriately.

h. For a genuine misreading (of numbers or symbols) which is such that the object and the difficulty of the question remain unaltered, mark according to the scheme but following through from the candidate's data. A penalty is then applied; 1 mark is generally appropriate, though this may differ for some units. This is achieved by withholding one A or B mark in the question. Marks designated as cao may be awarded as long as there are no other errors.
   If a candidate corrects the misread in a later part, do not continue to follow through. Note that a miscopy of the candidate's own working is not a misread but an accuracy error.

i. If in any case the scheme operates with considerable unfairness consult your Team Leader.

Question			Answer	Marks	AO	Guidance
1			Speed between 50 and 70 mph chosen	M1	AO2	Allow lower speed with reason e.g. if the journey takes place when the motorway is busy it might only be possible to go at 30 mph
			200 ÷ their speed	M1	AO1	
			3 hours	A1	AO3	Time in hours or hours and minutes rounded to no more accurate than nearest 10 mins. ft their speed
				[3]		
2	(a)		5000/24	B1	AO2	
				[1]		
2	(b)		Too low	B1	AO3	
			Dev is not allowing for interest in his calculations	E1	AO2	
				[2]		
3			His average speed in the 100m race was greater than in the 200m race.	B1	AO3	
			Doubling 100 m time or halving 200 m time	M1	AO2	Allow use of error bounds
			Time for same distance less in 100 m	A1	AO3	Allow alternative method of calculating the speed for each race showing 100m speed is faster.
				[3]		

Question			Answer	Marks	AO	Guidance
4	(a)		Target number of hours is e.g. 140	B1	AO2	May be seen in working Implied by an increase of 22 to 27 hours per year on average
			A teacher teaches e.g. 20 hrs Each teacher teaches for 38 × 20 hrs 760 hours	M1	AO1	May be seen in working FT *their* 20 hours
			Average class size is e.g. 30 (between 15 and 30 chosen)	B1	AO2	May be seen in working
			2 500 000 ÷ 30 ≈ 83 000 classes	M1	AO1	FT *their* 30
			(*their* 140 – 116) × 83 000 (= 2 000 000 teacher hours needed)	M1	AO1	FT
			About 2500 extra mathematics teachers are needed	A1	AO3	Must follow through from their working and be given to at most 2 s.f. Answers in range 1900 to 6000 can be expected, depending on the assumptions and approximations which students make. **SC2** for an answer in range 1900 to 6000 with no working.
			ALTERNATIVE METHOD **(**working from 1 extra lesson per week)			
			Target number of hours is e.g. 140	B1	AO2	May be seen in working Implied by an increase of 22 to 27 hours per year on average
			(*their* 140 – 116) ÷ 38 = 0.6315... hours (= 40 mins per week)	M1	AO1	
			Average class size is e.g. 30 (between 15 and 30 chosen)	B1	AO2	May be seen in working
			2 500 000 ÷ 30 ≈ 83 000 classes	M1	AO1	FT *their* class size
			A teacher teaches e.g. 20 hrs $\frac{83000 \times 0.6315\ldots}{20}$	M1	AO1	May be seen in working FT *their* number of classes, class time and teacher time
			About 2500 more teachers needed	A1	AO3	Must follow through from their working and be given to at most 2 s.f.
				[6]		

Question			Answer	Marks	AO	Guidance
4	(b)		Average class size is e.g. 30 (between 15 and 30 chosen)	**B1** **[1]**	**AO2**	Reasonable assumption about class size May be in part **(a)** Ignore additional assumptions
5			There is a tendency for obesity levels to go up as smoking levels go down This does not mean that the drop in smoking is causing the increase in obesity Other relevant and true comment **[3]**	**B1** **B1** **B1**	**AO3** **AO3** **AO3**	Statement about negative correlation related to context Cannot tell if either causes the other e.g. correlation does not imply causation e.g. • Cannot tell if trend will continue • Sample limited to men/England • Suggest alternative cause for correlation • Suggests way of investigating causality
6	(a)		First statement: 7 out of every 10 parents were fined. Second statement: For example, 10 parents were fined last year and 17 this year. **[4]**	**B2** **B2**	**AO1** **AO3** **AO2** **AO3**	Could be using bigger numbers e.g. out of 500 parents, 350 were fined OR nearly three quarters of parents were fined OR over half of parents were fined **B1** for "most parents were fined" with no numbers. Correct example with second number 70% more than the first **B1** for "the number of parents fined was more than last year"
6	(b)		The statements do not mean the same – the second statement is about the increase from the year before, but the first statement is not. **[1]**	**B1**	**AO3**	OR the first statement means that most parents were fined but the second need not. Clear explanation – may refer back to examples in part (a)

Question			Answer	Marks	AO	Guidance
7	(a)	(i)	Births: 37 × 10.67 [= 394.79]	B1 [1]	AO3	
7	(a)	(ii)	Two numbers in correct ratio identified Dividing 395 in ratio Rounding to given numbers 175 female, 220 male	M1 M1 A1 [3]	AO1 AO2 AO3	E.g. 126 males for every 100 females or 1.26 males for 1 female E.g. 395 ÷ (126 +100) = 1.7477… 174.77 females ≈ 175 May obtain second number by subtracting from 395
7	(b)	(i)	197(.5)	B1 [1]	AO1	Allow 197, 198 or 197.5
7	(b)	(ii)	$\frac{\sqrt{395}}{2}$ = 9.937…	M1 A1 [2]	AO1 AO2	Use of $\frac{\sqrt{n}}{2}$ implied by correct answer 9.9 or better
7	(b)	(iii)	$\frac{220 - 197.5}{9.9}$ 2.27 Just over two standard deviations from mean So not strong evidence that the model is incorrect	M1 A1 B1 B1 [4]	AO1 AO2 AO2 AO3	Calculation of number of standard deviations from mean for number of males or females OR adding (or subtracting) 2 or 3 standard deviations to mean

Question			Answer	Marks	AO	Guidance
7	(b)	(iv)	Mean = 82 330 Standard deviation = 203 Azerbaijan is about 25 sd from mean Azerbaijan is unusual being about 25 sd from the mean. It provides strong evidence that the initial model is not correct.	**B1** **B1** **B1** **E1** **[4]**	**AO1** **AO2** **AO2** **AO3**	 $\frac{87355-82330}{203}$ (or from female numbers)
8			40 ÷ 3 13 and a bit days The warden needs to check [at least] every 13 [working] days, on average.	**M1** **M1** **A1** **[3]**	**AO1** **AO2** **AO3**	**OR** multiples of 3 to approach 40 **OR** drivers who pay every day pay £15 a week **OR** It takes 3 weeks (or 14 days) to cost more than £40 Allow every 12 days or once a fortnight if supported by correct working **OR** every 17 days if weekends are included If zero scored, **SC1** for saying there is no point in the warden checking more than once a day

Question			Answer	Marks	AO	Guidance
9	(a)		<table><tr><th></th><th>+ve</th><th>-ve</th><th>Total</th></tr><tr><td>drug</td><td>95</td><td>5</td><td>100</td></tr><tr><td>No drug</td><td>190</td><td>1710</td><td>1900</td></tr><tr><td>Total</td><td>285</td><td>1715</td><td>2000</td></tr></table>	M1 B1 B1 B1 [4]	AO2 AO1 AO2 AO1	Selection of suitable overall total e.g. a multiple of 2000 Answers are shown for an overall total of 2000 but any multiple of this table is correct (need not be an integer multiple) 100 and 1900 190 and 1710 OR 95 and 5 FT their 1900 Rest of table correct
9	(b)		$\frac{285}{2000}$ 14[.25]%	M1 A1 [2]	AO2 AO3	 FT
9	(c)		$\frac{95}{285}$ $\frac{1}{3}$	M1 A1 [2]	AO2 AO1	Correct denominator Simplified fraction or percentage, 33% or better.

Question			Answer	Marks	AO	Guidance
10	(a)		A method which could be used to make a decision. Method given as a set of clear rules Method takes account of all the data in the table Method includes what to do if there is a tie	B1 B1 B1 B1 [4]	AO2 AO3 AO2 AO2	For this mark, the method might be described very briefly e.g. use the total. For this mark, the method should be described in a way that someone else could use it. Method should include a rule for putting the dancers in order. This could include deciding not to use lowest and/or highest scores NOT just use the scores from one specific judge This could be using additional data e.g. asking the head judge to decide
10	(b)		One feature of their method which is fair	B1 [1]	AO3	E.g. The lowest scores are ignored – this means that dancers who just get one low score are not disadvantaged
10	(c)		Application of their method to calculate at least one score for one dancer Correct score for one dancer for their method All scores worked out Correct first place determined Correct second and third clearly stated	M1 A1 B1 B1 B1 [5]	AO1 AO1 AO1 AO3 AO3	Score need not be correct for this mark, but it must be clear they are using the method in (a)

Sample Assessment Material

Level 3 Certificate Core Maths A (MEI)

H868/02 Critical Maths

Sample Insert

INSTRUCTIONS
- You can write on this Insert but it will **not** be sent for marking.

INFORMATION
- This Insert contains the pre-release material you have already seen.
- This document has **4** pages.

A Car parking

Car parks often have charges for parking in them. In a pay and display car park, people who have paid are required to display a ticket in the car.

From time to time a warden will check all the cars in the car park and fine drivers who are not displaying a ticket.

PAY AND DISPLAY

Find parking space first Display ticket inside windscreen

CHARGES

8.30 am – 6.30 pm Mon, Tue, Wed, Sat

8.30 am – 8.30 pm Thu, Fri

UP TO 2 HOURS 20p

UP TO 4 HOURS 30p

UP TO 6 HOURS 40p

OVER 6 HOURS 50p

Parking is permitted in accordance with the Gateshead

M.B.C (Parking Places) Order 1982 and contravention of the Order will incur the standard contract charge of **£10**

PLEASE NOTE: **THIS CAR PARK IS CLOSED**

AT 6.30 pm on Mon, Tue, Wed, Sat and 8.30 pm on Thu, Fri

B Male to female sex ratio

When working with probability, we often assume that equal numbers of boys and girls are born. This is not quite the case. There are often slightly more boys born than girls. Historically, about 105 boys are born for every 100 girls. This means that the probability of a new baby being a boy is 0.51 rather than 0.5. However, it is often convenient to approximate this to 0.5.

Women tend to live longer than men which is one reason why the proportions of males and females in a population are slightly different for different age groups. The number of males for every female is the male to female sex ratio. The male to female sex ratio at birth is shown below for a sample of countries.

Country	Male to female sex ratio at birth
Albania	1.11
American Samoa	1.06
Angola	1.05
Barbados	1.01
Bhutan	1.05
Bulgaria	1.06
Cook Islands	1.04
Gabon	1.03
Germany	1.06
Guinea-Bissau	1.03
Guyana	1.05
Kosovo	1.08
Luxembourg	1.07
Madagascar	1.03
Norway	1.06
Portugal	1.07
United Kingdom	1.05
Uruguay	1.04
Zambia	1.03

Data: CIA World Factbook

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Sample Assessment Material

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Level 3 Certificate in Core Maths A (MEI)

H868/02 Critical Maths
Sample Pre-release Material

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- You can ask your teacher for advice and discuss this pre-release material with others in your class.
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INFORMATION
- A clean copy of this pre-release material will be given to you with the question paper.
- This document has **4** pages.

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- In the exam you won't have time to read this material in full but you should refer to it in your answers.

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[601/4783/0]

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Guyana	1.05
Kosovo	1.08
Luxembourg	1.07
Madagascar	1.03
Norway	1.06
Portugal	1.07
United Kingdom	1.05
Uruguay	1.04
Zambia	1.03

Data: CIA World Factbook

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Summary of updates

Date	Version	Change
September 2025	3.0	Accessibility changes: Arial font Left alignment of text, tables and graphs Emboldening titles and key words Language modification of questions Scaffolding of questions into parts to ensure only a single demand being requested per question and to improve the awarding of follow through marks Replacement of answer boxes with answer lines Insertion of answer spaces after each question part, rather than grouped Detail of RM assessor added to mark scheme Mark scheme rubric updated